

IN THE CLAIMS:

1-18. (Cancelled)

19. (New) Apparatus for improving flow characteristics of injection moulding material, the apparatus comprising:

a flow path through which a material to be injection moulded passes in use;

ultrasonic vibration means arranged for direct contact with material passing through the flow path in use, for directly vibrating the material as it is being injected, wherein the flow path is formed in a part of an injection moulding tool.

20. (New) Apparatus as claimed in claim 19, wherein the injection moulding tool includes a fixed part that is fixed relative to an injection barrel during normal use and a moving part that is adapted to move relative to the fixed part during normal use and wherein the flow path is formed in the fixed part of the injection moulding tool.

21. (New) Apparatus as claimed in claim 19, wherein the flow path defines a longitudinal axis and wherein the vibration means extends transverse to the longitudinal axis of the flow path, and wherein an end portion of the vibration means is arranged for direct contact with the material passing through the flow path in use.

22. (New) Apparatus as claimed in claim 19, wherein a portion of the vibration means extends at least partially into the flow path to directly vibrate material in the flow path.

23. (New) Apparatus as claimed in claim 19, wherein the vibration means is mounted on the part of the moulding tool that forms the flow path.

24. (New) Apparatus as claimed in claim 19, further comprising non-metallic seating means for mounting the vibration means on the apparatus, the non-metallic seating means being configured to prevent metal-to-metal contact between the vibration means and the apparatus.

25. (New) Apparatus as claimed in claim 24, wherein the non-metallic seating means are also configured to provide a seal about the vibration means.

26. (New) Apparatus as claimed in claim 19, further including a seal disposed about the vibration means at a nodal point on the vibration means where little or no vibration occurs.

27. (New) Apparatus as claimed in claim 26, wherein the seal includes a metallic seal means.

28. (New) Apparatus as claimed in claim 19, wherein the vibration means includes an ultrasonic probe.

29. (New) Apparatus as claimed claim 19, wherein the vibration means includes a sonotrode.

30. (New) Apparatus as claimed in claim 19, wherein the vibration means is configured to operate at a frequency of between 10kHz to 50 kHz.

31. (New) A method for improving the flow characteristics of a material being injected from an injection barrel to a tool cavity, comprising the steps of:

injecting a volume of material through a flow path defined in part of an injection moulding tool, and

vibrating the material being injected into the flow path through direct contact of the material being injected with an ultrasonic vibration means.

32. (New) A method as claimed in claim 31, wherein the direct contact in the vibrating step occurs at a position between the injection barrel and the tool cavity.